

ABSTRACT OF THE DISCLOSURE

The present invention relates to an electrochemical cell, a gas diffusion layer of an electrochemical cell, and a method of using the gas diffusion layer. The electrochemical cell includes (a) a membrane electrode assembly; (b) a first reactant flow field plate for providing a first reactant flow field disposed on one side of the membrane electrode assembly; (c) a first seal disposed between the first reactant flow field plate and the membrane electrode assembly for impeding leakage of process fluids of the electrochemical cell; (d) a first gas diffusion layer disposed between the first reactant flow field plate and the membrane electrode assembly for diffusing reactant from the first reactant flow field to the membrane electrode assembly; and (e) a second reactant flow field plate for providing a second reactant flow field disposed on the other side of the membrane electrode assembly. The gas diffusion layer provides a peripheral support structure for supporting the membrane electrode assembly at a periphery between the first reactant flow field and the first seal to impede substantial distortion of the membrane electrode assembly between the first reactant flow field and the first seal.